Bob Vila's
Home Design™

Version 1.0

USER'S GUIDE

COMPTON'S
HOME
LIBRARY™

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1

Getting Started

Whether it’s remodeling, building an addition, or building a home, it’s always wise to draw up some plans before you pick up the hammer. *Bob Vila’s Home Design* is the software tool for this planning stage, making it possible to draw your floor plan in two dimensions and then “walk through” your plan in three dimensions.

Bob Vila’s Home Design is hosted by Bob Vila, host of the popular television series “Bob Vila’s Home Again.” The program is fun and easy to use and full of rich multimedia.

In addition to custom floor plan design, *Bob Vila’s Home Design* includes:

- Search 1001 Home Plans
- Bob Vila’s Video Tips, which offer helpful strategies for designing and building your home
- An Internet link, which will take you straight to the Bob Vila’s Home Design Online page if you have World Wide Web access

You will also find animated home tours, over 500 design symbols, interior and exterior 3D views, and helpful planning advice throughout the program. With so many features, *Bob Vila’s Home Design* can satisfy the floor plan and home design needs of everyone from the curious home dreamer to the serious home designer.

Before You Begin

Please note the following before using *Bob Vila's Home Design*:

- *Bob Vila's Home Design* runs on Windows 95 or higher.
- *Bob Vila's Home Design* requires 36 MB* of hard disk space and 16 MB of memory.
- Before you use *Bob Vila's Home Design*, the program must be properly installed. See page 2-1 for complete information on installation.
- *Bob Vila's Home Design* requires a multimedia PC with a double-speed or better CD-ROM drive. For best results, make sure that your display is set to at least 256 colors.

** An additional 34 MB of disk space is required to install Adobe Acrobat™ and AOL.*

Registration

Please register your copy of *Bob Vila's Home Design* as soon as possible. Registered users benefit from:

- Free technical support
- Immediate notification of software updates and new products. As a registered user, you will receive notification on the newest features of *Bob Vila's Home Design* as they become available.

Getting the Answers You Need

Bob Vila's Home Design comes with three different types of documentation. Take some time to familiarize yourself with all of them:

- User's Guide (this booklet)
- Help menu in *Design Your Own Plan*
- Help button in *Search 1001 Home Plans*

User's Guide

This User's Guide provides step-by-step tutorials that will show you how to use *Design Your Own Plan* to design floor plans, design roofs, then walk through the floor plans in full 3D. The User's Guide is a teaching tool, not a complete reference. Use it to guide you as you learn how to use the program. If you need detailed information about a particular feature, command, or dialog, you can quickly and easily look it up using the help system.

NOTE: *You can also read this User's Guide and search its contents from your hard drive. During installation, be sure to select the option of installing Adobe Acrobat Reader. This User's Guide will be installed in the Bob Vila directory on your hard drive. Double-click on* ***UsersGuide.pdf t****o open the User's Guide.*

Help System

For quick reference while using *Design Your Own Plan*, press the <F1> key or choose Help Topics from the Help menu. For information on how to use the Help system, click the Using the Help System topic on the Help Contents screen. In *Search 1001 Floor Plans*, use the Help button on the search or browse screen.

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Technical Support

Before calling Technical Support, please check the User's Guide, the help files, and the Readme file to make sure you don't already have the information you need. If you still have questions, call our Technical Support Center at 423-670-2020 or send us e-mail at support@learningco.com.

Calling or Writing Technical Support

Technical Support will work closely with you to solve any problem(s) related to our software. Please give our support technicians as much information as possible. Remember that they are not in front of your computer and that they need your help to diagnose the problem.

The Learning Company's Technical Support staff will do their best to help you with your software-related problems. On occasion, a problem can be traced to hardware or to another software application. Our technicians will supply as much support as possible in these cases, but they are not authorized to support products manufactured or published by another company.

You might find that e-mail is a more satisfying way to get technical support. The technician will have time to fully consider your problem and formulate an answer. If you do send e-mail, provide as much information as you can about your system and the problem. Use the following checklist.

Technical Support Checklist

To receive the fastest response to your technical questions, please complete the following checklist before you call or send e-mail:

- You may already have the information you are looking for. Before calling, thoroughly check your User's Guide, as well as the help systems and the Readme file.
- Record the exact sequence of events that created the problem. Make sure that you can reproduce the problem by following the same series of steps.
- Have the name, version number, and file date of the application.
- Know the type of computer and Windows version you are using.
- Record the exact wording of any error messages.
- If possible, be in front of the computer, with the computer on.

2

Installation

The installation program copies the *Bob Vila's Home Design* application and associated files to your hard disk or network drive, and adds a Compton's Home Library™ program group and program item to the Windows 95 Start menu.

How to Install

These instructions assume that the AutoPlay feature of Windows 95 is turned on. (This feature is usually enabled when you install Windows 95 on your computer. For more information about AutoPlay, refer to your Windows 95 documentation.)

1. Make sure Windows 95 is fully launched and running on your computer.
2. Insert CD #1 into your CD-ROM drive. After a brief delay (5–20 seconds), a dialog box appears. Click on Install.
3. If no dialog box appears, double-click on My Computer, and then double-click on the CD-ROM icon. Click on Setup.
4. Follow the onscreen instructions to complete the setup process.

NOTE: *You must install QuickTime™ in order to view the videos and animations in* Bob Vila's Home Design.

Running *Bob Vila's Home Design*

Using Windows 95:

1. Click the Start button to open the Start menu.
2. Click Programs.
3. Click the Compton's Home Library program group.
4. Choose Bob Vila's Home Design.
5. Choose Bob Vila's Main Menu.

From the main menu screen, you will have four options:

- Choose Search 1001 Home Plans to browse existing floor plans, 3D Views, and animated home tours.
- Choose Design Your Own Plan to create custom home plans or make modifications to the 101 editable floor plans.
- Choose Visit Home Design Online to find useful web site links, access additional home plans, and e-mail Bob with your home design questions.
- Choose Bob Vila Video Tips to access helpful strategies for planning your home design.

NOTE: *When you choose to play a video from Bob Vila Video Tips, you will be prompted to insert CD #2 into your CD-ROM drive. If you want to return to Search 1001 Home Plans, you will be prompted to switch back to CD #1.*

Connecting to the Internet

If you have access to the Internet and a World Wide Web browser, you can connect to Bob Vila's Home Design Online. During installation, you will be given the option of either selecting your current web browser or installing America Online. If you choose not to install America Online, you will be prompted to identify your current web browser. Click the Browse button, and locate your web browser executable on your hard drive. Then proceed with the installation process.

After installation, you can access Bob Vila's Home Design Online by clicking on the Home Design Online button in the main menu. This page provides links to useful web sites and additional home plans, and it lets you e-mail Bob Vila directly with questions about your project. If you use a modem to connect to your internet service provider (ISP), you must be actively connected to your ISP before launching Bob Vila's Home Design Online.

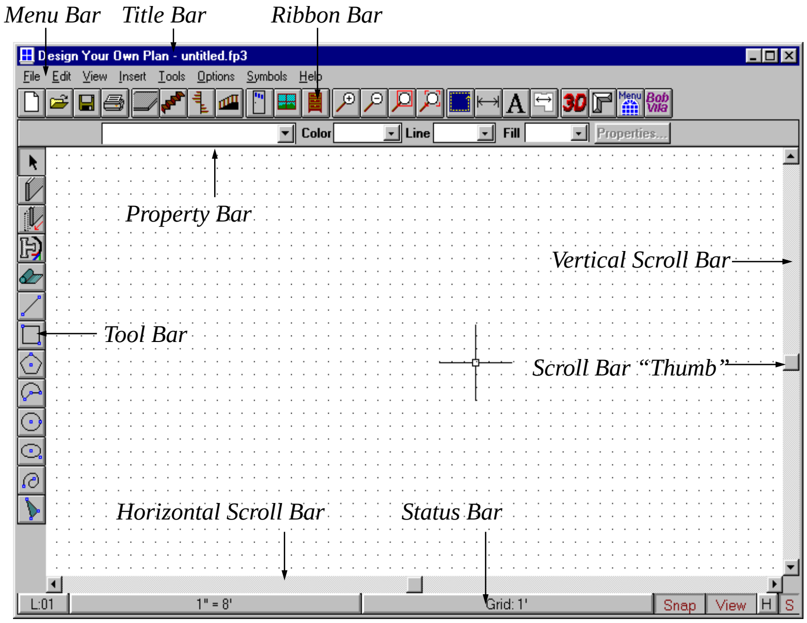
3

Design Your Own Plan Interface

This chapter explores the *Design Your Own Plan* graphical user interface. The interface consists of the *Design Your Own Plan* window and its components, which include menus, buttons, and toolbars. The first part of the chapter lists and briefly describes the components of the *Design Your Own Plan* window. The second part of the chapter looks at the more important components in greater detail.

Design Your Own Plan Window

When you first start *Design Your Own Plan* (see page 2-2) the *Design Your Own Plan* application window appears on your screen. The following figure shows the components of the application window.



The following list describes the components of the window:

Title Bar. Displays the file name of the currently active *Design Your Own Plan* drawing file. If no drawing file is active, it displays "untitled.fp3".

Menu Bar. Contains a set of menus through which you can access *Design Your Own Plan*'s commands.

Ribbon Bar. Contains a collection of buttons representing menu commands. Clicking a button is a shortcut to choosing a menu item.

Tool Bar. Contains building tools and all of the drawing tools.

Property Bar. Displays the style and properties of the selected object or tool. Lets you set properties and style, and access more properties via the Properties button.

Status Bar. Displays instructions or status information for the current command or tool.

Scroll Bars. Allow you to move, or *pan*, to different parts of a drawing by clicking on an arrow at the end of the scroll bar, on the area between the arrow and the thumb, or by dragging the thumb.

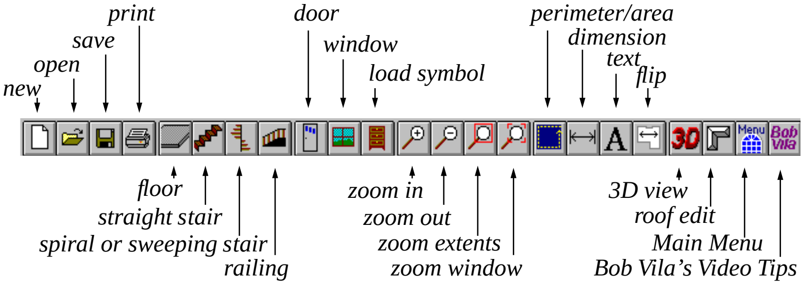
Menu Bar

The menu bar is a set of menus containing commands and submenus. To choose a command from the Menu Bar:

1. Point to a menu name, then click the left mouse button.
2. Point to the command name, then click the left mouse button. (If a submenu appears, point and click to choose a command from the submenu.)

Ribbon Bar

The Ribbon Bar contains icons that represent the most commonly used menu commands in *Design Your Own Plan*. To choose a command, click on the icon in the Ribbon Bar.



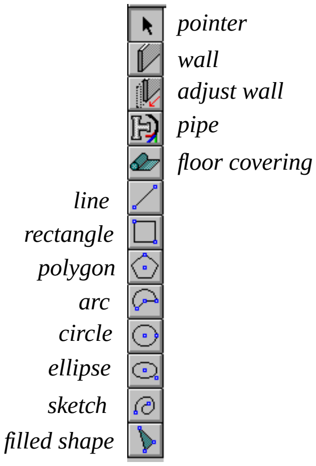
The following table lists the commands and describes what they do.

Command/Tool	**Function**
New	Close the current drawing and start a new one.
Open	Open an existing drawing.
Save	Save the current drawing.
Print	Print a drawing.
Floor	Draw floors.
Straight stair	Draw a straight staircase.
Spiral stair	Draw a spiral or sweeping staircase.
Railing	Draw a railing.
Door	Select and place a door symbol.
Window	Select and place a window symbol.
Load symbol	Select and place a symbol.
Zoom in	Go to closer view of drawing.
Zoom out	Go to view further from drawing.
Zoom extents	Go to view that shows the entire drawing.
Zoom window	Draw a window then zoom to view of objects in window.
Perimeter/Area	Calculate the perimeter and area of a selected region.

Command/Tool	**Function**
Dimension	Draw a dimension (label) showing the length of an object.
Text	Place text in drawing.
Flip	Flip the entire floor plan around its vertical axis.
Roof edit	Go to Roof Editor to build or modify roof.
3D View	Go to a 3D walkthrough of your floor plan.

Tool Bar

The Tool Bar which is positioned vertically along the left side of the window, contains the Pointer tool, which has several functions, four building tools, and all of the drawing tools. Building tools are used to create or work with standard objects, such as walls and floors. Drawing tools are used to create shapes, which can be used to represent any type of object that you can't represent with the building tools. You can choose whether to hide the Tool Bar, display it along the left side, or display it as a floating palette, by choosing Tool bar from the Options menu, then choosing an option from the submenu.

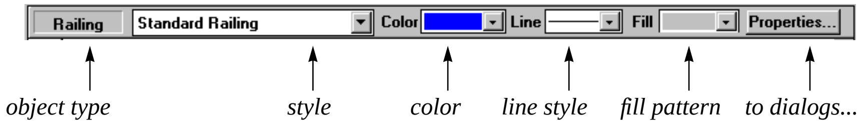


The following table summarizes the tools and their functions.

Tool	**Function**
Pointer	Select objects so they can be manipulated.
Wall	Draw walls.
Adjust Wall	Stretch, shrink, and move the endpoints of walls.
Wire & Pipe	Diagram wires and pipes.
Floor Covering	Cover areas with carpet, grass, etc.
Line	Draw a straight line between two points.
Rectangle	Draw a rectangle.
Polygon	Draw a polygon. Use Option|Polygons to choose number of sides.
Arc	Draw an arc.
Circle	Draw a circle defined by two points.
Ellipse	Draw an ellipse.
Sketch	Draw a freehand sketch.
Filled Shape	Draw an irregular filled polygon.

Property Bar

The Property Bar displays information about the properties of objects, and allows you to modify the style and properties of tools, styles, or selected objects. You can display and hide the Property Bar by choosing Property bar from the Options menu.



If you activate a tool, for example the Wall tool, the Property Bar will show the default properties for that tool. If you select an object, the Property Bar displays the properties of that individual object. You can access more of the tool or object's properties by clicking the Properties button, which displays the Properties dialog for the tool or object.

SEE ALSO: *For more information on using the Property Bar, see Properties and Styles on page 4-7, or refer to the chapter Properties and Styles in the* Design Your Own Plan *help system.*

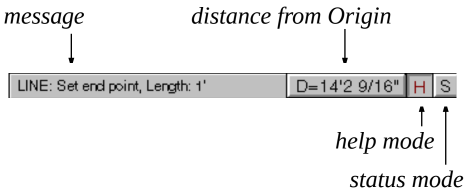
Status Bar

The Status Bar is displayed along the bottom of the window. You can display and hide the Status Bar by choosing Status bar from the Options menu. The Status Bar can be viewed in two different modes: Help mode and Status mode.

Help Mode

To display the Status Bar in Help mode, do one of the following:

- Click the H button on the Status Bar.
- Press <Ctrl>+<H>.
- Choose Display help mode from the View menu.


LINE: Set end point, Length: 1'

D=14'2 9/16"

The following list describes the parts of the Status Bar in Help mode:

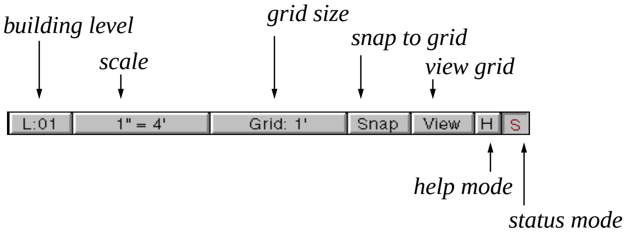
Message. Displays a message about the currently selected tool or a prompt for the next step in a sequential process. In many cases the message displays information about exact lengths, distances, and angles.

Distance from Origin. Displays the distance of the cursor from the Origin point (the X inside a circle, which initially appears at the center of the drawing area).

Status Mode

To display the Status Bar in Status mode, do one of the following:

- Click the S button on the Status Bar.
- Press <Ctrl>+<T>.
- Choose Display status mode from the View menu.



The following list describes the parts of the Status Bar in Help mode:

Building Level. Displays the current building level. Click to bring up a dialog in which you can set building level properties and choose the current building level. For more information, see Building Up on page 9-1.

Scale. Displays the ratio of the drawing objects at their size on screen to the size of the real-world objects that the drawing objects represent. A ratio of 1" = 8' means that approximately one inch of screen space is equal to eight feet of space in the building you are drawing. Click this button to modify the view scale.

Grid Size. Displays the distance from any grid point to the next grid point. Click this button to modify grid spacing.

Snap to Grid. Click this button to toggle snap-to-grid on and off. If snap-to-grid is on, the button characters will be red.

View Grid. Click this button to display and hide the grid.

4

The Basics

In this chapter you'll learn the essential skills you'll need to draw, edit, and format in *Design Your Own Plan*. The chapter covers:

- Drawing and building tools
- Drawing to scale
- Changing your view
- Editing
- Properties and styles

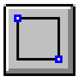
Drawing and Building Tools

Most of the drawing and building tools are located on the Tool Bar along the left side of your screen, although a few of the more advanced tools are located on the Ribbon Bar along the top of the screen. You can also choose any of these tools from the Insert menu.

Although each of the drawing tools is unique, they all operate according to the same simple principles. You first click on a button to choose the tool you want to draw with. Then you click two or more times in the drawing area to define a series of points. The number of points depends on the type of object you are drawing. To draw a line or wall you only need to define two points: the start and the end. To define an irregular shape, you need to click on each corner of the shape, then right-click, or click again on the starting point again, to close the shape.

Try this now with a couple of different tools:

1. Click on the Rectangle tool, located on the Tool Bar.



2. Click at two different locations in the drawing area to place two opposite corners of the rectangle.

Drawing a rectangle is simple, but to create a floor plan, you may want to draw a rectangle representing an area of an exact size. The next section shows you how to do this.

Drawing to Scale

A floor plan is much more useful if it is drawn to scale. If a room is 10 feet by 15 feet, you want this information to be represented in your floor plan. If you then put a king size bed in the room, you want the dimensions of the bed to be correct, so that you can walk through the room in 3D and see how well the bed fits in the room. That's why when you draw an object in *Design Your Own Plan*, you size it in feet, not in inches, centimeters, or picas, as you might in an application designed for page layout or illustration.

Using the Grid

The most basic technique for drawing to scale is to use the grid. The grid is the pattern of dots that you see on the drawing area when you first start *Design Your Own Plan*. The grid points are separated by exact distances. By "snapping" to these grid points, you can make sure that the dimensions of objects are exact.

The following sections explain how to adjust the grid spacing and how to turn the grid on and off. To make this easier, put the Status Bar in Status mode by clicking on the S button on the Status Bar.

Grid Size

When you first start *Design Your Own Plan*, the grid points are set one foot apart. If you want to adjust the grid size, click the button labeled Grid: 1', then type the grid size you want in the dialog. For example, type **4'** to set the grid size to four feet, or type **6"** to set the grid size to six inches, then click OK to close the dialog.

Snap-to-Grid and Grid Visibility

Sometimes you will want to snap to the grid while drawing, and sometimes you won't. You can turn snap-to-grid on and off by clicking the Snap button in the Status Bar. You can also make the grid visible or invisible by clicking the View button in the Status Bar. (Remember that the Status Bar has to be in Status mode for this.)

For now, make sure that the grid is visible, and that snap-to-grid is on.

NOTE: *The visibility of the grid has no effect on whether snap-to-grid is on, and vice versa. You can snap to an invisible grid, and you can see the grid and not snap to it.*

Drawing Exact Distances

Let's now try drawing a rectangle again, but this time draw it at an exact size. To do this, you'll use snap-to-grid while watching the message shown in the Status Bar. Let's make a rectangle that represents an object nine feet wide and twelve feet long:

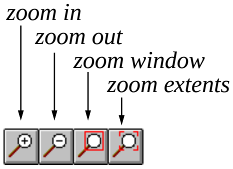
1. First set the Status Bar to Help mode by clicking the H button. This will provide you with important feedback as you draw.
2. Click on the Rectangle tool to activate it.
3. Click near any grid point to "anchor" the rectangle, then start to move the mouse cursor. While you are moving the mouse, look at the message on the left side of the Status Bar.

- Move the mouse up and to the right until the message reads Width: 9', Height: 12', then click to finish the rectangle.

You have now drawn an object of an exact size.

Changing Your View

While you are working, you will often want to see different parts of your drawing, or see the drawing closer up or further away. You can use the standard Windows scroll bars to pan to a different location in the drawing. To zoom in and out, you can use any of the Zoom tools on the Ribbon Bar.



Each of these tool buttons has a keyboard equivalent, and they are all available from the View menu as well.

Zoom In. Click this button or press the <+> key on your numeric keypad to zoom to a closer view.

Zoom Out. Click this button or press the <-> key on your numeric keypad to zoom out to a more distant view.

Zoom Window. Click this button or press <Ctrl> +<Home> to activate the Zoom Window tool, then drag a rectangle around the area that you wish to view.

Zoom Extents. Click this button or press <Ctrl>+<Backspace> to zoom to a view of your entire drawing.

Editing

Once you have drawn objects, you will often want to *edit* the objects by moving then, changing their size, rotating them, and so forth. Before you can edit an object, you need to *select* it.

SEE ALSO: *For more detailed information about editing, refer to the chapter Editing Objects in the* Design Your Own Plan *help system.*

Selecting Objects

You select objects using the Pointer tool, which is located at the top of the Tool Bar. There are two ways to select an object: clicking on the edge of the object, or using the *selection window.* To use the selection window, click with the Pointer tool at one corner of a rectangle, then drag the rectangle so that it completely encloses the object or objects that you want to select. This is a quick way to select multiple objects.

You can also <Shift>-click to select or deselect multiple objects. Once you have selected a single object, hold down the <Shift> key, then click on more objects to add them to the selection. If you <Shift>-click on a selected object, you will deselect that object without deselecting any other objects.

To select all of the objects in your drawing, choose Select All from the Edit menu, or press <Ctrl>+<A>.

Moving Objects

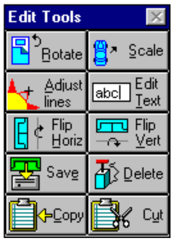
Moving objects in *Design Your Own Plan* is slightly unconventional, but it combines simplicity with exact placement.

1. Select any objects that you want to move.
2. Position the cursor at the edge of an object, then hold the mouse button down without releasing it.
3. Start to drag the object, then once it starts moving, release the mouse button. The selected object(s) continue to follow the cursor.
4. Click at the point where you want to release the object.

TIP: *To precisely place an object, you need to be aware of what part of the object you want to place. Let's say you want to move the lower-left corner of a rectangle to a particular location. Make sure that you grab the lower-left corner of the rectangle when you start your move.*

Using the Local Edit Tools

Once you have selected an object, you can right-click anywhere in the drawing area to display the Local Edit Tools.



This tool palette lets you apply a variety of editing commands to selected objects. For now, let's try some of the more common edits.

SEE ALSO: *For complete information, see the Editing Objects chapter in the* Design Your Own Plan *help system.*

Copy and Cut

Copy and Cut are commands that let you copy selected objects to the clipboard. Copy leaves the original objects in place, while Cut removes the original objects and places a copy on the clipboard. From the clipboard, you can paste copies of the object into the current drawing, or into another drawing.

Let's make some copies of one of the rectangles you drew earlier.

1. Click on the border of one of the rectangles to select it.
2. Right-click to display the Edit Tools, then click the Copy button.
3. Press <Ctrl>+<V> or choose Paste from the Edit menu. A copy of the rectangle will be attached to the cursor.
4. Click to place the rectangle.
5. Repeat steps 3 and 4 to make more copies of the rectangle.

Scaling and Rotating

You can also use the Edit Tools palette to scale and rotate objects. Let’s try this with any rectangle:

1. Click on the border of one of the rectangles to select it.
2. Right-click to display the Edit Tools, then click the Scale button. A rectangle with “handles” appears around the rectangle.
3. Click on any handle, move the mouse cursor, then click again. The rectangle is resized.
4. Select the rectangle again, right-click, then click the Rotate button in the Edit Tools palette.
5. Click to set a point around which to rotate. Think of this as the center of the wheel.
6. Move the cursor to rotate the rectangle. The further you move the cursor from the center that you defined, the finer your control over the rotation.
7. Click to set the rectangle’s new position.

Properties and Styles

Every object that you draw has a set of *properties*. These properties include its color, the style of the lines used to draw it, and its fill pattern, if it is a filled object. Complex objects such as stairs and rails have many more special properties. You can set these properties using the Property Bar and the Properties dialogs.

Building objects such as walls and floors have standard property settings called *styles*. You can choose a style from the Style pulldown box on the Property Bar. (Refer to Property Bar on page 3-5 for a labeled picture of the Property Bar.)

There is an important distinction between setting the properties of a tool or style and setting the properties of an individual object. The following sections provide examples of each case.

SEE ALSO: *For more detailed information on formatting and properties, refer to the chapter Properties and Styles in the* Design Your Own Plan *help system.*

Setting Tool Properties

When you activate a drawing tool then change property settings, you change the default properties of all the drawing tools (lines, rectangles, polygons, arcs, circles, ellipses, and filled shapes). Any drawing object that you create after making the changes will have those same property settings. Try this and see how it works:

1. Click on the line tool to activate it.
2. Click on the Color pulldown box on the Property Bar, then click on the red bar to change the line color to red.
3. Click in the drawing area to anchor the line, then click at another position to finish drawing the line.

Any lines or other drawing objects that you subsequently draw in this drawing will be red.

Setting Style Properties

You can activate a building tool, choose a style, then set the properties of that style. The new property settings are saved in the style, so that if you draw another object of that type and style, it will be drawn with the new property settings. Let's see how this works:

1. Click on the Wall tool to activate it.
2. Click in the Style pulldown box of the Property Bar, then choose Brick Exterior Walls - 4". Notice that the Color and Fill settings change.
3. Click in the Color pulldown box and choose light gray.
4. Click once in the drawing area to anchor the wall, then click at another point to finish the wall.

The wall will be drawn in a gray brick pattern. Any subsequent walls that you draw using the Brick Exterior Walls - 4" style will also have this color and pattern.

SEE ALSO: *To learn how to create your own customized styles, refer to Chapter 11 of this guide and to the Properties and Styles chapter of the* Design Your Own Plan *help system.*

Setting Object Properties

When you select an object or a set of objects then change property settings, you only change the properties of the selected objects. Try this:

1. Click on the Pointer tool, then click on the edge of the wall you just drew to select it.
2. Click on the Color pulldown box on the Property Bar, then click on the red bar to set the wall’s color property to red.
3. Click on the Wall tool again. Notice that the wall deselects and that its color is now red.
4. Draw another wall.

The new wall should be light gray, because you changed the properties of an individual wall, without affecting the color property of the current wall style that you previously set.

Using the Properties Dialogs

Each type of object that you can draw has a Properties dialog which you can access by clicking the Properties button on the Property Bar. These dialogs give you access to the special properties for each type of object.

SEE ALSO: *For detailed information about all of these dialogs, see the Properties and Styles chapter of the* Design Your Own Plan *help system.*

5

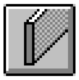
Drawing Walls

When you start a new floor plan, the first thing you will probably want to do is draw the exterior walls. *Design Your Own Plan* includes a variety of tools that make drawing walls easy and precise. This lesson demonstrates different techniques for drawing walls, and shows you how to use the Wall Adjust tool to edit walls after they have been created.

Drawing a Wall

Let’s start by drawing a wall in the simplest possible way, using snap-to-grid for placement.

1. Make sure that snap-to-grid and view grid are turned on. To do this, check to see that the buttons labeled S, Snap, and View on the Status Bar are turned on. If the Snap and View buttons are not visible, you’ll need to click S first to change to the Status Bar to Status mode.
2. Click the Wall button, located just below the Pointer on the Tool Bar.



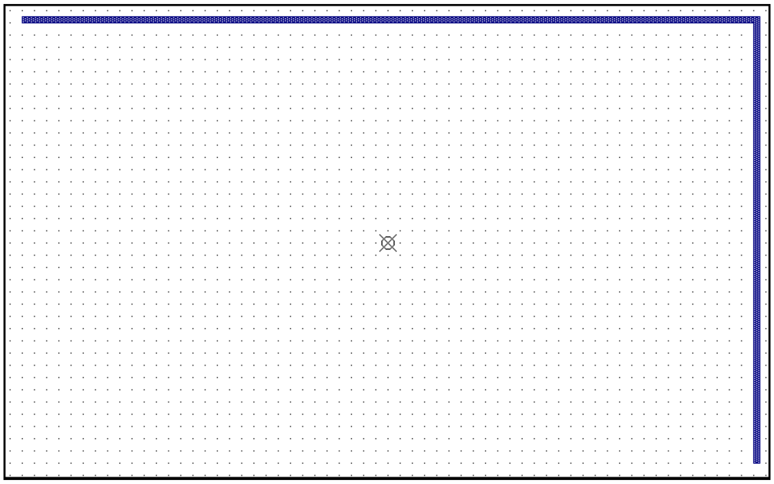
3. Move your cursor to the upper-left portion of the drawing area and click to start drawing a wall. Notice that the cursor now “jumps” from one grid point to another when you move the mouse in the drawing area.
4. You can move the cursor anywhere in the drawing area and one end of the wall will stay where you originally clicked, while the other end stays with the cursor. Move the cursor into the upper-right portion of the drawing area. Position the wall horizontally so that it does not slant up or down, and then click again.

Drawing a Second Wall

The next step is to draw another wall attached to the first wall.

1. Click at the right-hand end of the wall you just drew. This starts a new wall, which forms a clean corner automatically with the first wall.
2. Move the cursor straight down toward the lower-right corner of the drawing area. Notice that as you draw both walls appear as an outline. Move the mouse down the screen to a point near the bottom of the drawing area and click again.

Your drawing should look similar to this:



Drawing to Exact Distances and Angles

The two walls you just made were easy to create, but do you know exactly how long they are? When you create a floor plan, you want the plan to correspond as exactly as possible to the building that you are designing. If you want a wall in your house to be fifteen feet long, you need your floor plan to model this information accurately. You could accomplish this by carefully counting grid points, but it's much easier if you use two *Design Your Own Plan* features: the Status message and the Draw Wall dialog.

Using the Status Message

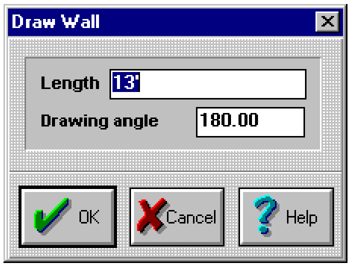
When the Status Bar is in Help mode, the message on the left side of the bar tells you the exact length and angle of the wall you are drawing. Click the H button on the Status Bar to put it in Help mode, then remember to check the status message occasionally during the remaining exercises in this chapter. You'll find that this provides an easy way to draw walls (and other objects) of exact lengths, especially if snap-to-grid is on.

Using the Draw Wall Dialog

The Draw Wall dialog makes it easy to draw walls with a degree of precision that would be tedious to achieve using the mouse.

TIP: *The dialog also enables you to draw a wall that is larger than your current drawing view. You couldn't do this using the mouse without zooming out and redrawing the wall.*

1. Click on the lower end of the wall you just drew.
2. Start moving the cursor to the left, then press the <Enter> key. The Draw Wall dialog box appears:

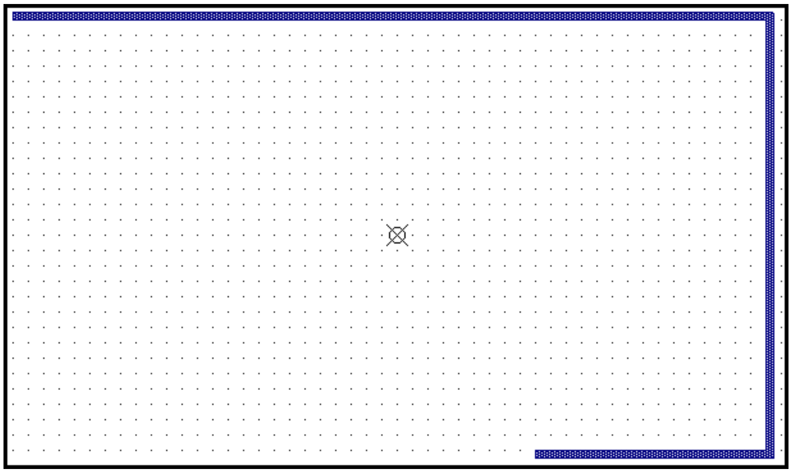

Draw Wall

Length 13'

Drawing angle 180.00

3. Notice the two fields in this dialog box, one called Length, the other called Drawing angle. Right now these fields contain information that describes the wall you are currently drawing. The Length field should already be highlighted, so simply type **15**' to change the length to fifteen feet.
4. Press the <Tab> key to go to the Drawing angle field, type **180**, then press the <Enter> key to close the dialog.

You now have a fifteen-foot horizontal wall. Your drawing should look like this:



Auto Dimensioning

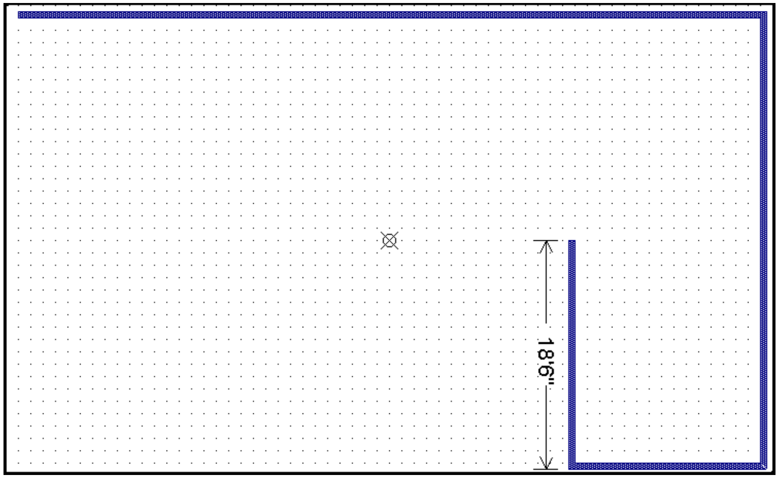
As you draw walls, you can display special labels called *dimensions* that show the length of the wall. You could do this with the Insert|Dimension tool, but you can also set an option called Auto Dimension, which automatically draws a dimension immediately after you draw a wall.

1. Click on the Options menu bar and select Auto Wall Dimensioning. When this option is on, a check mark will appear next to the menu item.
2. With the Wall tool active, click at the end of the last wall you drew.
3. Start drawing a wall by moving the cursor up. Draw 18 feet straight up (check the Status Bar for the length), then click to complete the wall.
4. A set of red arrows appear, along with a rectangle that moves left and right with your mouse cursor. Try moving your cursor up and down and notice that the arrows stay in the same horizontal position.
5. Move the cursor a little to the left of the wall, then click. The arrows will turn black and the box will turn into dimension numbers indicating the length of the wall. Notice that the dimension takes the thickness of the adjoining wall into account, so that the measurement it displays is six inches greater than the length of the wall you drew.

TIP: *If the characters and arrows that make up the dimension are too large or too small, simply select the dimension using the Pointer tool. Once the dimension is highlighted, click on the Properties button to reset the font and size.*

SEE ALSO: *To learn how to add a dimension to a wall that has already been drawn, refer to the chapter Building and Drawing tools in the* Design Your Own Plan *help system, or search for Dimension in the help system.*

Your drawing should now look something like this:

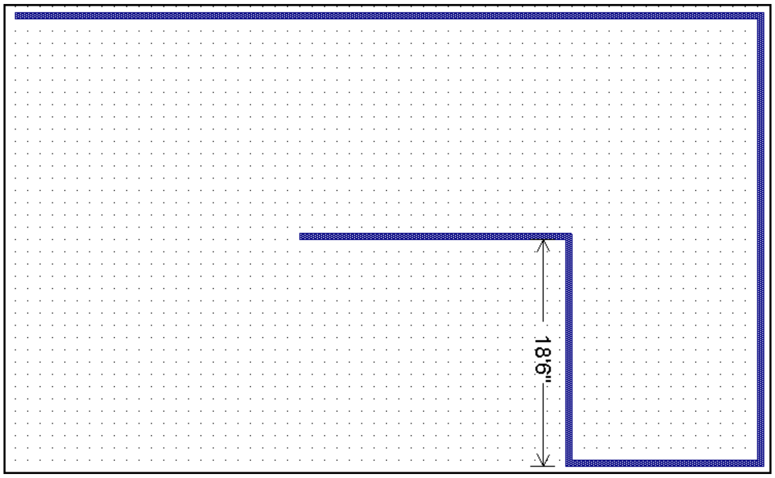


Wall Flip

A wall is composed of two lines. When you draw a wall, one of the two lines is aligned to a *baseline* that determines the positioning of the wall. You can “flip” the wall over the baseline as you are drawing it by pressing the <Spacebar>. Let’s demonstrate this with the next wall.

1. Return to the Options menu and turn off the Auto Wall Dimensioning feature by choosing it again (the check mark will disappear).
2. Click at the end of the previous wall and start drawing a wall toward the left. Notice that this wall partly covers the dimension line you drew with the last wall. To correct this, press the <Spacebar>. The bottom of the wall, rather than the top of the wall, is now aligned to the baseline. Now draw the wall about halfway back to the left edge where the first wall began, then click.

Your drawing should look like this:



Adjusting a Wall

The last wall you drew extends part way to the left edge of the drawing. Let's extend the left end of that wall so that it lines up with the left end of the first wall you drew.

1. Click on the Adjust Wall tool, located on the Tool Bar just below the Wall tool.

2. Click on the last wall you drew near its left edge. Notice that the wall turns into an outline and the left edge stays with your cursor.
3. Move the left edge of the wall so that it is even with the left edge of the first wall you drew (check the grid markers), then click to finish the wall.

Closing the Wall

To complete the drawing for this first lesson, draw one more wall connecting the last wall to the first:

1. Click on the Wall tool.
2. Click at the end of the last wall you drew and draw a wall upward until you meet the left edge of the first wall you drew, then click again.

Save Your Work

Now would be a good time to save your work.

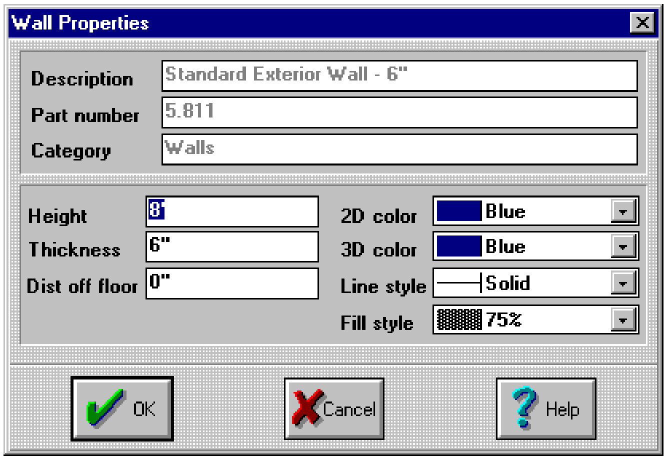
1. Click the Save button on the Ribbon Bar.

2. A dialog box will pop up and allow you to enter a name for your drawing. Type **Drawing1**, then press the <Enter> key (or click OK) to close the dialog. Your drawing will be saved in a file named drawing1.fp3.

Wall Properties

Now that you have saved your drawing, take a moment to explore the properties of walls.

1. Select the Pointer tool and click on any of the walls in your drawing and notice that the wall turns into a red outline.
2. Click on the Properties button (located at the right-hand side of the Property Bar) to display the Wall Properties dialog, in which you can change the wall’s properties:



Description: Standard Exterior Wall - 6"
Part number: 5.811
Category: Walls
Height: 8'
Thickness: 6"
Dist off floor: 0"
2D color: Blue
3D color: Blue
Line style: Solid
Fill style: 75%

Any object in *Design Your Own Plan* can be modified by selecting it and clicking on the Properties button to bring up a Properties dialog.

SEE ALSO: *For detailed information on properties for all type of objects, refer to the Properties and Styles chapter in the* Design Your Own Plan *help system.*

6

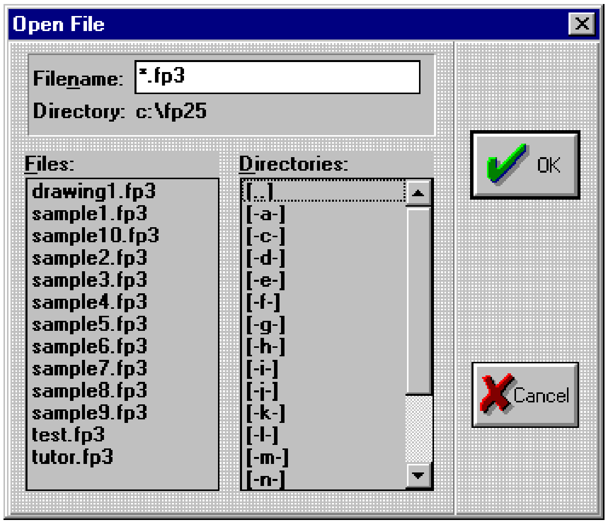
Floors, Doors, and More

In the previous chapter, you drew the walls of your floor plan and saved your work in a file called drawing1.fp3. Let’s finish the example floor plan by adding floors, windows, doors, and some furniture. At the end of this lesson, you’ll walk through your new floor plan in 3D!

Opening Your Drawing

If you don’t already have your drawing from the previous chapter on screen, open it now.

1. Choose Open from the File menu. The Open dialog appears.



Filename: *.fp3
Directory: c:\fp25

2. If the drawing you are looking for (drawing.fp3) appears in the Files box, select the file name by clicking on it, then click OK to close the dialog. If you saved the drawing in another folder, you can use the Directories box to navigate to that folder. Click a drive letter, for example **[-d-]**, to change drives. Click a folder name, such as **[plans]** to open a folder. Click **[..]** to go up to the next higher folder.
3. After you have selected drawing1.fp3, click OK to close the dialog and open the file.

SEE ALSO: *For more information on files and folders, see your Windows documentation.*

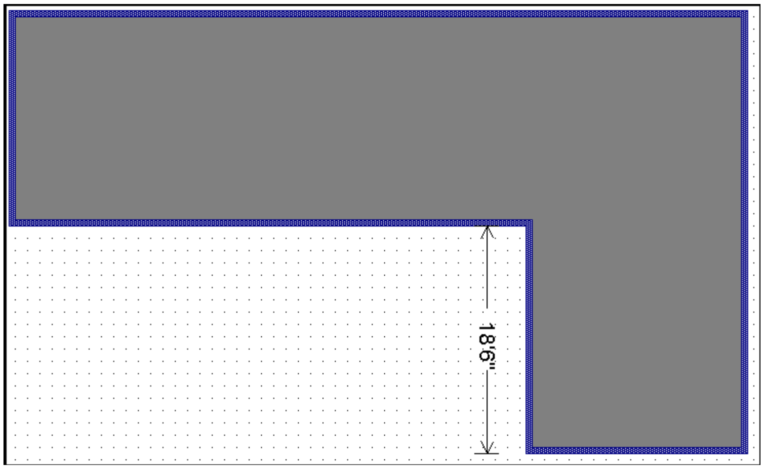
Drawing Floors

First, let's add a floor to the drawing using the grid to ensure accuracy. You'll define a series of points, each of which represents one corner of the floor.

1. Make sure that the snap-to-grid and view grid are turned on. You can use the Status Bar for this, or the View menu.
2. Click the Floor tool, located on the Ribbon Bar.
3. The default floor style is Cement Slab, which appears in the pulldown menu on the Property Bar. You can select another style by scrolling through the list and highlighting the style you wish to use.
4. Place the cursor on the inner edge of the upper-left corner of the wall, then click.
5. When you move the cursor, a "rubber band line" is attached to it, showing you the connection between the points as you define them. Click again in the inner upper-right corner of the floor plan. Continue to make your way around the perimeter of your floor plan, clicking in each corner.
6. When you get to the lower-left horizontal wall, you will no longer be able to snap to the inside of the wall. This is because the wall was "flipped" on its baseline when it was created (see page 5-5). Click on the outside edge of the corners instead.

7. When you click again at the point where you started, *Design Your Own Plan* will draw the floor. At first the floor will be drawn on top of the wall. Press <F5> to redraw the objects on the screen in the correct order.

Your drawing should now look something like this:



Placing Windows

Windows are associated with the wall in which they are drawn. Let’s place some windows inside the walls of the floor plan.

1. Select the Window icon on the Ribbon Bar.

2. The window styles appear in the pulldown list box of the Property Bar. Choose Window: Double Pane 4'.
3. Click on any wall: A red outline of the window will appear. You can slide the window back and forth only inside the wall.
4. When you are happy with the position of the window, click the mouse again to set it in place.

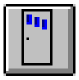
TIP: *If you decide to change the window’s position, you can select the window with the Pointer tool, reposition it, then place it again by clicking.*

Try drawing a few more windows in different locations, using the different styles available in the Property Bar pulldown list box.

Placing Doors

Now that you have some windows, let’s add a few doors to the floor plan. The procedure for doing this is essentially the same as the procedure for adding windows.

1. Click the Door icon on the Ribbon Bar.



2. Select a style for the door in the Property Bar pulldown list box. Left Hinge 2' 6" is a fine choice.
3. Click on the wall in which you want to place the door. Using the mouse, slide the door along the wall, then click again to lock it into place.
4. Repeat this procedure to add more doors to the floor plan.

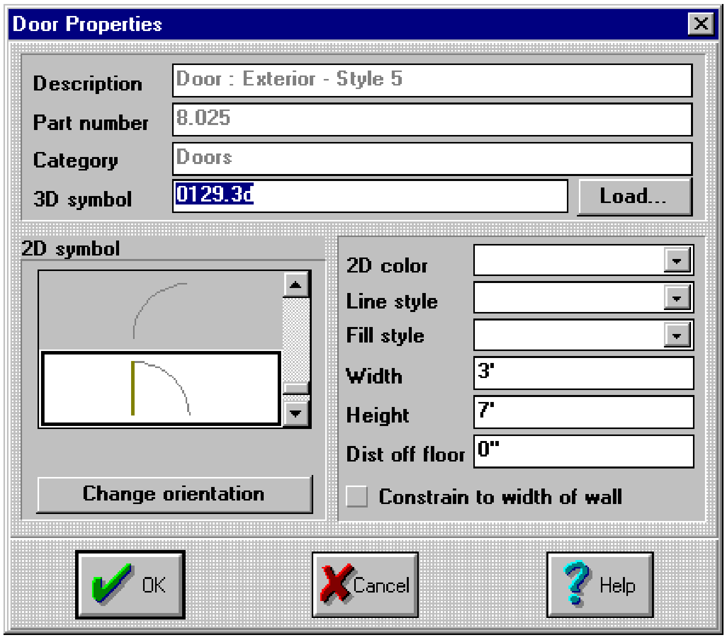
TIP: *To reposition the door, activate the Pointer tool, click on the edge of the door, slide it along the wall, then click again.*

Changing Door Orientation

A door’s orientation changes whether it opens from left to right, or whether it opens to the inside or outside. You may want to try this out with some of the doors in your floor plan.

To change a door's orientation:

1. Select it with the Pointer tool, then click on the Properties button. The Door Properties dialog appears.



Door Properties

Description: Door : Exterior - Style 5

Part number: 8.025

Category: Doors

3D symbol: 0129.3d

2D color:

Line style:

Fill style:

Width: 3'

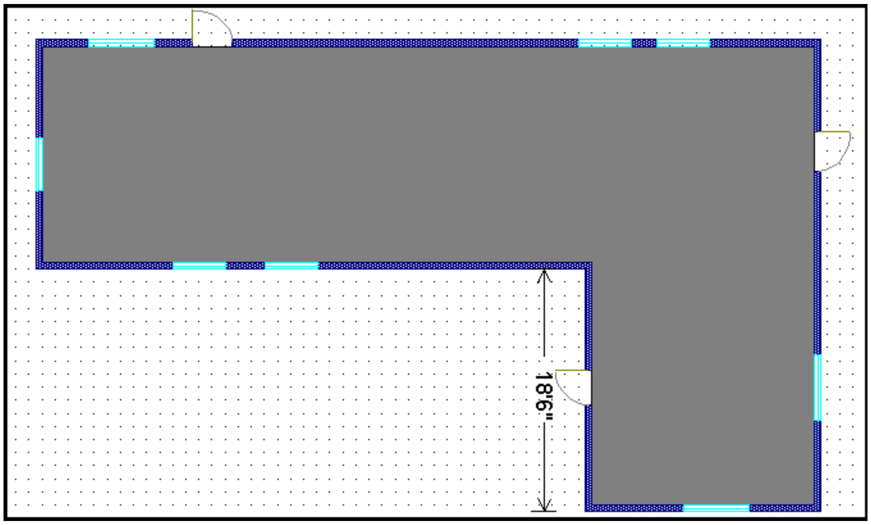
Height: 7'

Dist off floor: 0"

☐ Constrain to width of wall

2. Click the Change orientation button to change the way the door opens. Keep clicking the button until the door opens the way you want.
3. Click OK to close the dialog.

Your floor plan should now look something like this:

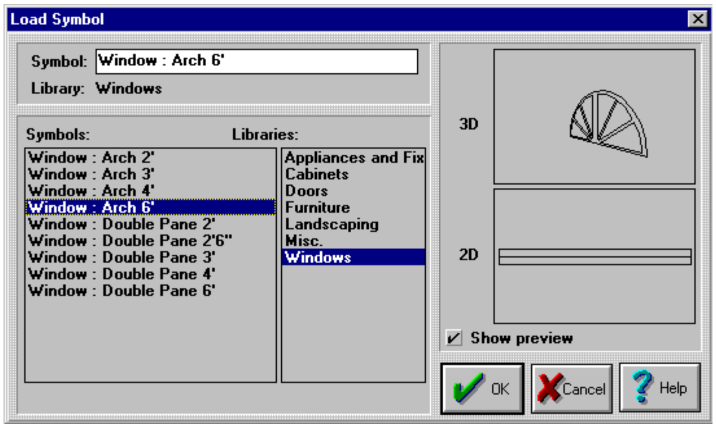


Previewing Windows and Doors

It's helpful to be able to see a preview of a window or door before you choose a style from the Property Bar.

1. Click the Load Symbol button on the Ribbon Bar.

2. The Load Symbol dialog appears.



3. Select Windows in the Libraries box, then select one of the window symbols in the Symbols box. The boxes on the right side of the Load Symbol box display two- and three-dimensional views of the window you selected.

WARNING: *We don't recommend inserting windows or doors through the Load Symbol command. When you load windows or doors in this way, they will not be fixed in the walls in which you want to place them. Instead, they behave like regular 3D objects.*

Furnishing the House

To furnish your house, you can load symbols from symbol libraries into your drawing. Then you can edit the symbols by resizing, rotating, and repositioning them.

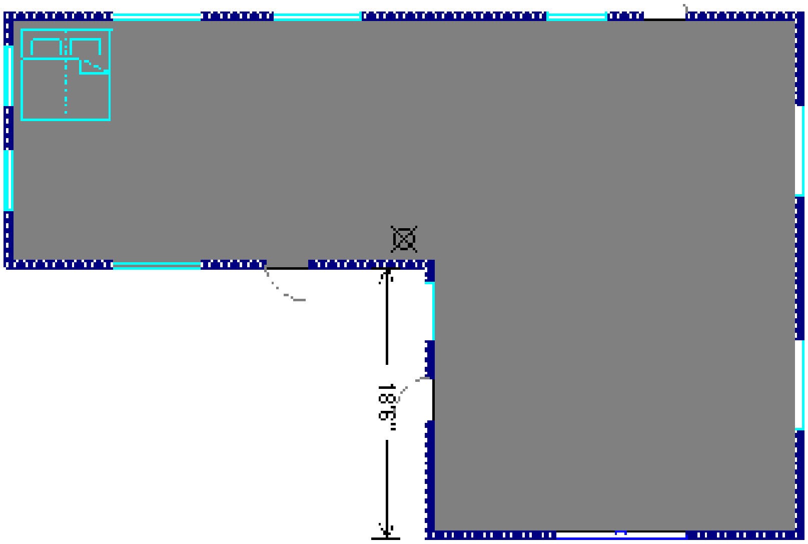
Loading a Symbol

To load a symbol from a symbol library:

1. Click the Load Symbol button, located on the Ribbon Bar.

2. The Load Symbol dialog, shown on page 6-7, appears.
3. In the dialog, select Furniture in the Libraries box, then select Bed: King Size with Headboard, then click OK to close the dialog.
4. Use the cursor to move the bed to the upper left-hand corner of the floor plan, then click to place it in your drawing.

Your drawing should now look like this:



Editing Symbols

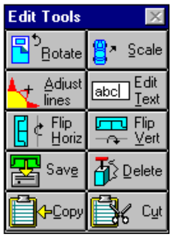
Now that you have loaded a symbol into your drawing, you will probably need to scale it to an appropriate size, and rotate it to the correct orientation. You may also want to adjust its position again once it has been scaled and rotated.

Resizing the Symbol

Let's say you are designing a house for a client with special needs, so you want to make the bed a custom size of 4.5 feet wide and 7 feet long. To adjust the size of the bed accurately, you'll first need to adjust the grid spacing, then use the scale feature to change the size of the bed.

TIP: *You can make this exercise easier by zooming in on an area close to the bed. Press <Ctrl>+<Home> to activate the Zoom to Window tool, then draw a rectangle around the area in which you want to work. Make sure to leave yourself some room to maneuver.*

1. If necessary, click the H button on the Status Bar to put it in Help mode. Make sure that snap-to-grid is turned on.
2. Press <Ctrl>+<D> or choose Grid Size from the View menu to adjust the grid spacing. Type **1"** into the dialog, and then click OK.
3. Select the bed by clicking on its edge with the Pointer tool.
4. Click the right mouse button to display the Edit Tools palette, then click the Scale button.



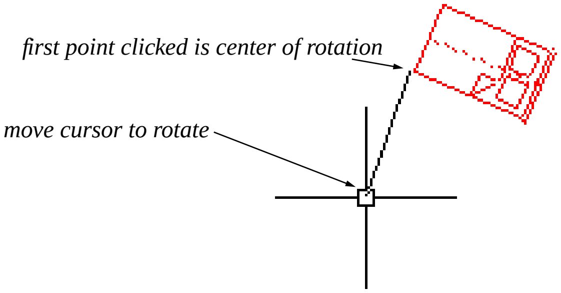
5. Scaling handles appear around the bed. Click on a handle at one of the bed's corners, then start to move the cursor. Note the size that appears in the Status Bar message.
6. Adjust the size of the bed until the bed is 4'6" wide and 7' long. Click to set the bed size.

NOTE: *You must right-click and push the Scale button again each time you wish to resize.*

Rotating the Symbol

Suppose that you want to turn the bed so that its headboard is against the left wall instead of the upper wall.

1. Select the bed with the Pointer tool, then right-click to bring up the Edit Tools palette.
2. Click on the Rotate button, then click close to the bed to set a point about which to rotate the bed.
3. Move the cursor in a circle around the point until the bed is rotated to the position you want. (To rotate with greater precision, move the cursor further from the point.)



4. Click a third time to set the bed's position.

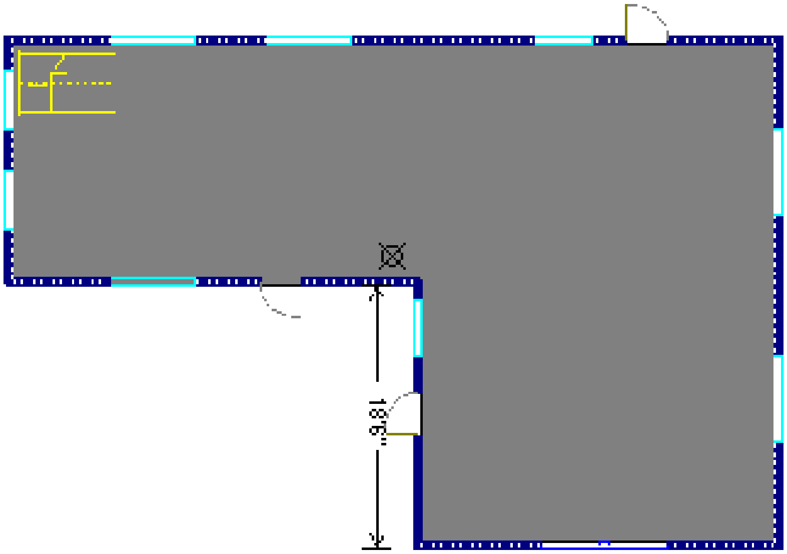
Moving the Symbol

While rotating the bed you probably moved it out of position. Here's how to move it.

1. Select the Pointer tool, position the cursor over the edge of the bed, then hold the mouse cursor down.
2. Without releasing the mouse, start to move the cursor. The bed follows the cursor.
3. You can now release the mouse button, but the object continues to follow the cursor.

4. Move the bed where you want it, then click to set its position.

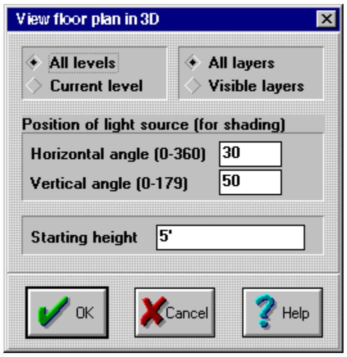
Your drawing should now look something like this:



Viewing Your Drawing in 3D

Now that you have created part of a floor plan, you can walk through it in 3D, using *Design Your Own Plan*'s 3D Viewer.

1. Click the red 3D button located directly above the Properties button.
2. A red view finder appears. Click to anchor it in the position from which you want to begin viewing your floor plan. Pick a point near the bed.
3. Move the mouse cursor to swing the view finder around until you are satisfied with the direction of the view, then click again. The View Floor Plan in 3D dialog appears.



View floor plan in 3D

● All levels
○ Current level

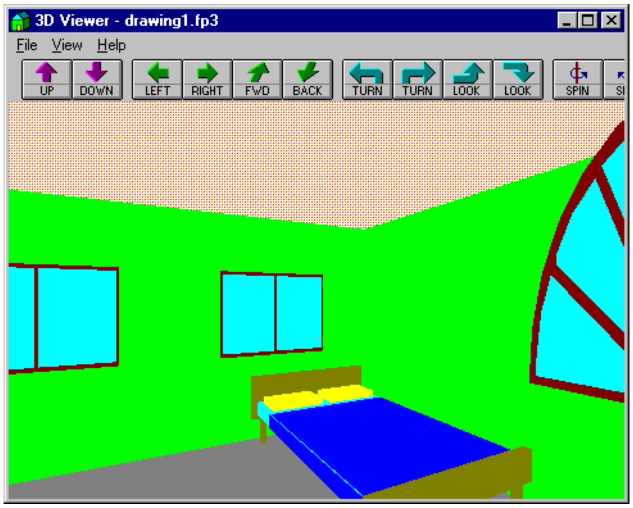
● All layers
○ Visible layers

Position of light source (for shading)

Horizontal angle (0-360): 30
Vertical angle (0-179): 50

Starting height: 5'

4. In this dialog you can change the angle of the light source, the layers to be displayed, and/or the starting height of your initial view. Click OK and *Design Your Own Plan* will begin building the 3D image. When it has finished, a 3D view of your drawing will appear.



SEE ALSO: *For more information, refer to Chapter 8, 3D Viewer.*

7

Symbols and Symbol Libraries

Symbols are reusable drawing components that you can use in different floor plans. Symbols can represent windows, doors, furniture, appliances; in short, any object that you care to represent in your drawing. Collections of symbols are called *symbol libraries*. Libraries are files with the extension .LIB, which are kept in your *Design Your Own Plan* folder.

In addition to being reusable components, symbols have another advantage. You can create them using several different drawing tools, but once they are saved as symbols they are treated as a single object, which you can move or modify as a single unit.

Design Your Own Plan also supports 3D symbols, which can be viewed in 3D mode. 3D symbols are kept in individual files with the extension .3D in your *Design Your Own Plan* folder (c:\Programs\Comptom's Home Library\BobVila\Design Your Plan, if you used the default installation settings). These files can be created using *KeyCAD™ Deluxe* for Windows, a powerful and easy-to-use 3D modeler. The 3D symbols can be associated with 2D symbols, so that objects can be represented in both 2D and 3D modes.

NOTE: *To order* **KeyCAD Deluxe** *directly from The Learning Company, call* ***1-423-670-2020***.

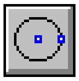
In Chapter 6 you learned how to place door and window symbols into your floor plan, and how to resize, rotate, and reposition the symbols. This chapter discusses:

- How to create your own 2D symbols and place them in a personal library.
- How to import 3D symbols from *KeyCAD Deluxe*.
- How to associate 3D files with 2D symbols.

Drawing a Symbol

Suppose you want to design a 2D symbol for a large ceramic urn. The first thing you would do is draw a circle:

1. Start a new drawing by choosing New from the File menu.
2. Turn snap-to-grid off (use the View menu or the Status Bar). Set the Status Bar to Help mode by clicking the H button in the lower-right corner of the *Design Your Own Plan* window.
3. Click on the Circle Tool on the Tool Bar.



4. Click at any position to place the center of the circle, then move the mouse to set the radius of the circle. The status message on the left side of the Status Bar tells you the radius of the circle. Click when the radius is approximately one foot.

TIP: *You might want to zoom in closer if you haven't already. Just press the <+> key on your numeric keypad.*

5. Repeat steps 3 and 4, drawing a smaller circle within the larger one.

Adding a Hatch Pattern

Next, to add detail to the urn, you'll add a *hatch pattern* to the inner circle.

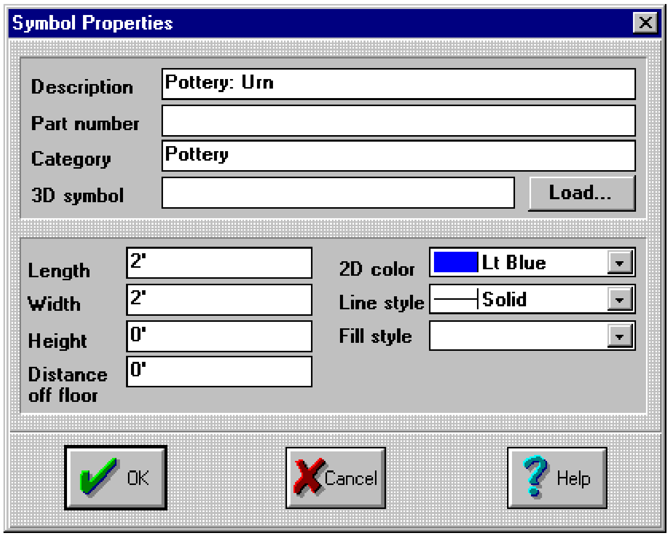
1. Click on the Pointer tool, then click on the edge of the smaller circle to select it.
2. Click the Properties button on the Property Bar. The Circle Properties dialog appears.
3. Click in the Fill Style box and select a hatch pattern that you like (for example, Cross Hatch), then click OK to close the dialog.
4. Click away from the circle to deselect it. The hatch will appear.

If you want to create a more elaborate symbol, use the line drawing tools, color properties, and fill patterns to add additional detail to the urn.

Saving the Symbol

Now that you've drawn the symbol, you can save it in a specific symbol library.

1. Click the Pointer tool, then click and drag a selection box around both circles. When they are selected, the circles will turn red.
2. Right-click, then click the Save button in the Edit Tools palette. The Symbol Properties dialog appears.
3. In the Description box, type **Pottery: Urn**. Disregard the Part Number and Category boxes. Ignore the 3D Symbol field for now as well (we'll discuss this on 7-7). The dialog should now look like this:



Symbol Properties

Description: Pottery: Urn
Part number:
Category: Pottery
3D symbol:
Length: 2"
Width: 2"
Height: 0"
Distance off floor: 0"
2D color: Lt Blue
Line style: Solid
Fill style:

4. Click OK to close the dialog. The Select Symbol Library dialog appears.
5. In the Select Symbol Library dialog, select Misc., then click OK.

The symbol is now saved in the Misc. library under the name Urn. To verify that it is indeed there, click on the Load Symbol icon and select the Misc. library. Scroll through the symbols box until you see Pottery: Urn. Select it, and then click OK to place it in your drawing. You should now have two copies of the Urn symbol.

Breaking Symbols

Once you have saved the selection as a symbol, it will be treated as a symbol in your drawing, so that you can select it, rotate it, scale it, and so forth, as one unit. If you subsequently want to edit the symbol by manipulating the individual lines, circles, and so forth out of which it is made, you need to *break* the symbol into its constituent parts.

To break one of the urns in your drawing:

1. Activate the Pointer tool, then click on the edge of the symbol to select it.
2. Choose Break Symbol from the Symbols menu.

You can now individually select and modify the two circles that make up the urn.

TIPS: *If you break a symbol and edit it, you can save the changes back to the symbol library. Just select the symbol, then save it to the symbol library again (as described in the previous section), giving it the same description as before. This will overwrite the library symbol with the edited version.* Design Your Own Plan *will warn you that you are about to overwrite an existing file.*

Managing Symbol Libraries

Design Your Own Plan comes with several standard symbol libraries, but you can easily create your own libraries. You can then add symbols to the libraries, delete symbols from the libraries, and modify the properties of symbols contained in the libraries.

Creating a New Library

Suppose you want a library of your own lighting symbols. You'll need to create a new library, then add your symbols to it:

1. Choose Create Symbol Library from the Symbols Menu. The Create Symbol Library dialog appears.
2. Type in the name you wish to assign to your new library, for example **lighting**, then click OK. A second dialog appears.
3. In the File Name box, type a file name for the library, for example **LIGHTING.LIB**. The name must consist of eight characters or less followed by a period and the extension LIB. in the file name box. (Windows 95 long file names are not supported in this version of *Design Your Own Plan*.)
4. Click OK to close the dialog.

WARNING: *You can use the Directories box to place your symbol library in a different folder; however, library files stored in folders other than the default* Design Your Plan *folder will not appear when you try to save or load a symbol. To prevent this from happening,* ***avoid changing the settings in the Directories box when creating symbol libraries****.*

Saving Symbols in Your New Library

Now that the library is set up, you can practice saving a symbol to your new library. This is exactly the same as saving symbols to the standard libraries, so you can follow the instructions under Saving the Symbol on page 7-3.

Deleting Symbols

To delete a symbol from a library:

1. Choose Delete Symbol from Library from the Symbols Menu. (Do not choose Delete Symbol Library: that deletes the whole library!) The Delete Symbol dialog appears.
2. In the Libraries box, select the library that contains the symbol you want to delete.
3. Scroll down in the Symbols list box until the symbol you want to delete appears. Highlight the symbol, then click OK to close the dialog.

WARNING: *Be careful when using this command. It can't be undone!*

Modifying Symbol Properties

You can modify the properties of symbols contained in any symbol library. Let's try this by changing the color of the urn symbol.

1. Choose Edit Symbol in Library from the Symbols Menu.
2. Select Misc. from the Libraries box.
3. In the Symbols box, scroll to Pottery: Urn symbol, select it, then click OK to close the dialog. The Symbol Properties dialog appears.
4. In the Symbol Properties dialog, change the 2D color of the urn to Cyan, then click OK to close the dialog.

If you now use the Load Symbol command to place a copy of the symbol in a drawing, the color of the symbol will be cyan.

SEE ALSO: *For information on setting the properties of symbols and other objects, refer to the Properties and Symbols chapter of the* Design Your Own Plan *help system. See page 7-4 for information on editing symbols using the drawing and editing tools.*

Using 3D Symbols

3D symbols are used to represent objects in the 3D viewer. 3D symbols are files stored in the Design Your Plan folder, with the extension .3D. You can *associate* a 2D symbol with a 3D symbol, so that when you place a 2D symbol in your floor plan, it appears as a 3D object when you view the house in 3D.

Design Your Own Plan comes with a set of 3D symbols. You can't create 3D symbols in *Design Your Own Plan*, but you can create them in *KeyCAD Deluxe*, and then import the symbols into *Design Your Own Plan*.

Importing 3D Symbols

To import a 3D symbol from popular CAD programs such as *KeyCAD Deluxe* or *TurboCAD*®:

1. Choose Import 3D Symbol from the Symbols Menu. The Select Drawing dialog appears.
2. Select the 3D symbol you want to import. For example, if you have installed *KeyCAD Deluxe*, you can import 3D symbols (files with the .mdl extension) into *Design Your Own Plan*..
3. Browse to the *Bob Vila's Home Design* folder (which is c:\Program Files\Compton's Home Library\Bob Vila unless you changed the folder name or installed to a drive other then C:).
4. Type in a name for the destination file, with the extension .3D. For example, suppose you want to import a *KeyCAD Deluxe* file called urn.mdl. In the Filename box type **urn.3d**. Click OK to save the converted 3D symbol file.

Associating 2D Symbols with 3D Symbols

When you have completed the file conversion from the .mdl to the .3d format, you must associate the 3D symbol with a 2D symbol you have already generated. Once you have done this, you can place the 2D symbol in your floor plan, then view the associated 3D symbol in the 3D viewer. Here's how to do it with the Urn symbol:

1. Choose Edit Symbol in Library from the Symbols menu. The Edit Symbol dialog appears.
2. In the Libraries box, select the custom library in which you stored your urn symbol earlier in this chapter, then click OK.
3. When the Symbol Properties dialog box appears, press the Load button to the right of the 3D Symbol field. Scroll through the Files list in the Load 3D Symbol dialog box until you see urn.3d (we've supplied this file for you). Select the file, then click OK.

You can now look at the urn in 3D in the 3D Viewer.

8

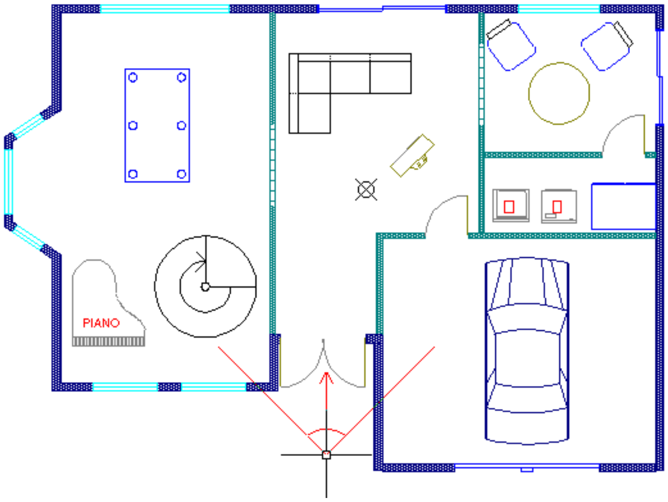
3D Viewer

On page 6-11 we took a quick look at how to start and run the 3D Viewer. Now let's look at the 3D Viewer in more detail. This chapter covers the following topics:

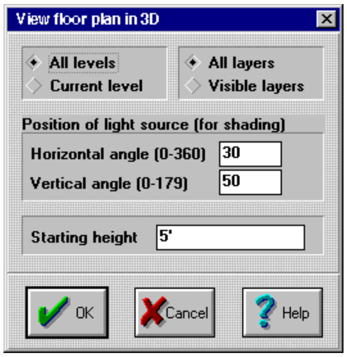
- Setting your position and light source
- Changing your view options
- Navigating in 3D space
- Printing a shaded view

Setting Your Position and Light Source

Before continuing however, open the smpl001.fp3 sample drawing, click the 3D button on the Ribbon Bar, then position your view just in front of the double doors. Your screen should look like this:



Click to position your starting point, rotate the view so that the open side of the view marker is facing the double doors, as shown in the figure, then click again to display the View Floor Plan in 3D dialog.



View floor plan in 3D

● All levels
○ Current level

● All layers
○ Visible layers

Position of light source (for shading)

Horizontal angle (0-360) 30

Vertical angle (0-179) 50

Starting height 5'

Notice that the 3D view of the floor plan is set to All Levels and All Layers. These settings determine what building levels and layers will be visible when you enter the 3D view. Starting height determines your initial position from the ground. You can change which layers are visible, as well as your height from the ground, after you enter the 3D Viewer, so you don't need to change these settings in the dialog. The following section will explain how to set the position of your light source.

SEE ALSO: *For detailed information on building levels and layers, search for "level" and "layer" in the* Design Your Own Plan *help system.*

Changing the Light Source

The 3D space in which you view your floor plan is illuminated by a single light source. The position and brightness of this light source determine how light is reflected from shaded surfaces in the 3D world.

Think of your viewpoint as located in the center of a circle on a horizontal plane. The degrees on the circle determine the horizontal position of the light source. If the light source were oriented straight ahead, it would be at 180 degrees horizontal. If it were directly behind you, it would be at 0 degrees horizontal. As you rotate your view of the 3D space, the light position will remain fixed: It won't rotate with you.

Now think of an arc on a horizontal plane, extending from one horizon of the circle on the horizontal plane to the opposite horizon. The degrees on this arc determine the position of the light's vertical orientation. If the light is at 0 degrees vertical, it is located right on the horizon line. If it is at 90 vertical, it is located straight overhead, at the peak of the arc.

For now type **0** into the Horizontal Angle box and **0** into the Vertical Angle box. Later you can try other settings. When you are finished, click OK to close the dialog and begin your walkthrough.

NOTE: *From within the 3D mode, select Set Brightness Level from the View menu to change the brightness of the light source.*

3D View Options

When you first start your walkthrough, you will notice that every time you move, it takes a long time for the screen to be redrawn. You can simplify your view of the drawing so that the screen redraws faster by controlling the visible layers, as well as by setting shading options. This allows you to maximize drawing speed until you get to a view you want to see, then reset the options to give yourself the best possible view. The following sections tell you how to do this.

Turning Layers On and Off

Objects in *Design Your Own Plan* are arranged in layers. You can control which layers are visible in either 2D or 3D mode by choosing Layers from the View menu. In the dialog that appears, click to remove the check marks from the layers that you don't want to view. For the simplest view of the floor plan in 3D, uncheck all of the options by checking the View None button, then check the Wall layer only.

Selecting Your Shading Options

There are five shading options that can be accessed by selecting Shading Options from the View menu. This brings up a submenu from which you can choose the shading option you want. The options are:

Flat. The most basic; this option gives you an unshaded view without outlines.

Shaded. This option renders a view that is shaded, but shows no outlines. This option gives you the best view of curved surfaces.

Flat with Outlines. Again, this option gives you outlines, but no light source.

Shaded with Outlines. This option provides the most realistic rendering. This option gives you the best view of angular surfaces.

Hidden Lines. This option produces a black and white line drawing without color or shading. This option provides the fastest redraw speeds.

WARNING: *When you first change your shading options, nothing will happen. You have to move first, in any direction, so that the screen will redraw.*

Navigating in 3D Space

The navigation buttons just below the menu bar provide an intuitive way to move around the floor plan. There are four groups of controls:

Up and Down. These controls move your viewpoint vertically, straight up and down.

Left, Right, Forward, Back. These controls move you in a straight line, forward, backward, or to either side. You can use the up and down arrow keys to move forward and back. To increase the distance moved in each step, hold down the <Shift> key and press the up and down arrow keys.

Turn and Look. The Turn and Look controls rotate your viewpoint in either the horizontal or vertical plane so that you can see 360 degrees around you.

Spin. The spin controls rotate the objects in the 3D space around the center of the 3D space, in both the horizontal and vertical planes. This gives you a view of all sides of the objects in front of you.

Printing a Shaded View

To print a shaded view, select Print from the File menu in the 3D Viewer. In the Print dialog, select the type of shading you want to apply to your printed view. Note that you can choose Color or Map to Black, and select layers you would like to print.

SEE ALSO: *For solutions to common printing problems, see the* Printing Your Drawing *chapter in the* Design Your Own Plan *help system.*

9

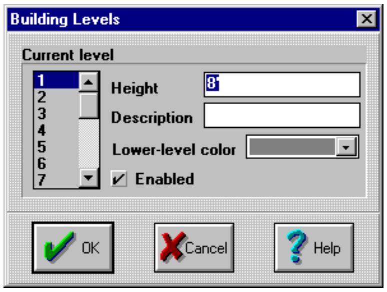
Multiple Stories

As we all know, space is becoming more valuable than ever. We can all do our part to reduce urban sprawl by building up, rather than out. In this chapter, you'll use a practice drawing, smpl002.fp3, to build a second story, then learn how to construct a staircase leading to the new story.

Building Up

Begin by opening the smpl002.fp3 sample drawing. Assuming that the second story will be similar in shape to the ground floor, the first step is to copy the first level to the clipboard, then paste it onto the second level.

1. Press <Ctrl>+<A> (Select All) to select the entire drawing, then press <Ctrl>+<C> (Copy) to copy the ground floor to the clipboard.
2. We'll now change to the second building level. Choose Edit Building Levels from the View menu. The Building Levels dialog appears.



Building Levels

Current level: 1

Height: 8'

Description:

☑ Enabled

3. Select 2 in the Current Level scrolling list, then click OK. Once the current level is changed, the ground floor turns gray and only the walls are visible.
4. To paste the copy of the ground floor onto the second level, make sure that snap-to-grid is turned off (use the View menu or the Status Bar), then press <Ctrl>+<V>, or choose Paste from the Edit menu. A copy of the first floor should now be attached to your cursor.
5. Use the mouse to line up the walls of the second story with those of the ground floor. Click to set them in place, then move the cursor away from the floor and click again to deselect it.

You can now modify the second floor by adding and removing windows, doors, and furniture.

SEE ALSO: *For more information on the Building Levels dialog, see the chapter Controlling the Drawing Area in the* Design Your Own Plan *help system.*

Building a Staircase

At this stage, you are ready to build a staircase linking the two floors together. We’ll design a standard staircase using the default settings.

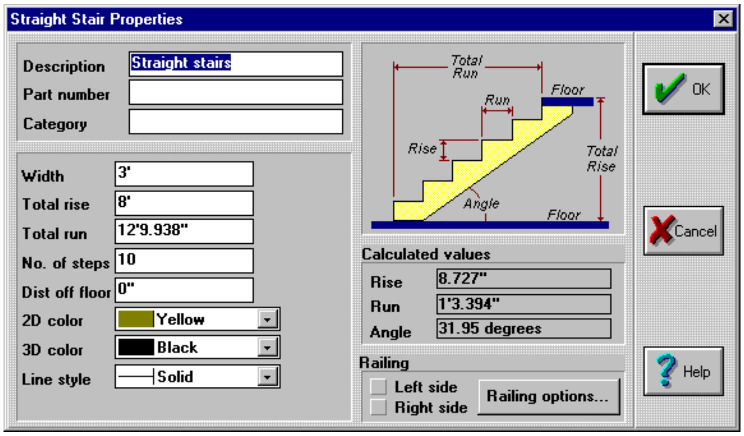
Before continuing, choose Edit Building Levels from the View menu (or click the level button in the Status bar), then set the current level to 1.

Formatting Stairs

Before actually drawing the staircase, let’s change some of the stair properties.

1. Click the Staircase button.

2. Click the Properties button on the Property Bar. The Straight Stair Properties dialog appears.



Straight Stair Properties

Description: Straight stairs
Part number:
Category:

Width: 3'
Total rise: 8'
Total run: 12'9.938"
No. of steps: 10
Dist off floor: 0"
2D color: Yellow
3D color: Black
Line style: Solid

Calculated values
Rise: 8.727"
Run: 1'3.394"
Angle: 31.95 degrees

Railing
☐ Left side
☐ Right side
Railing options...

3. As you can see, this dialog provides a lot of flexibility in the design of staircases. Click to set the 3D color of the stairs to Cyan, click in the box labeled Right side to add a railing to the right side of the staircase, then click OK to close the dialog.

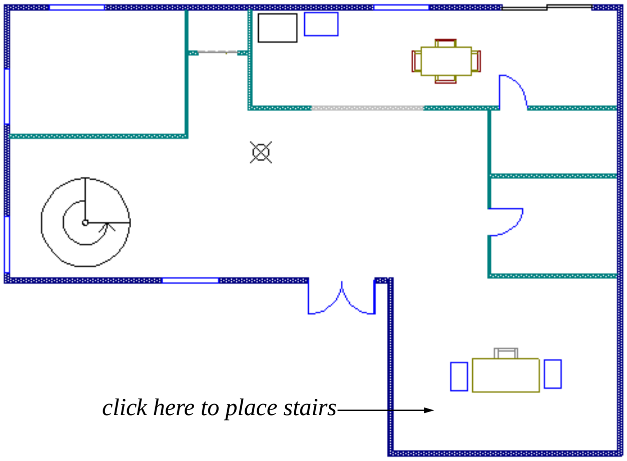
SEE ALSO: *For detailed instructions on formatting straight and spiral stairs, see the chapter Properties and Styles in the* Design Your Own Plan *help system.*

Drawing Stairs

To draw the stairs:

1. Click on the Staircase button.

2. Click at the point shown in the following figure:


click here to place stairs

3. Move the cursor to rotate the staircase until it is oriented straight up, along the left wall, then move the cursor to increase the length of the staircase. The farther you drag the staircase, the longer each step will be. Click to place the staircase.

Try clicking the 3D button now. Set your viewpoint to the base of the staircase facing up. You'll get a 3D view of your staircase leading up to the second floor.

10

Building Roofs

You can create roofs for your house plan using *Design Your Own Plan*'s Roof Editor. There are five basic steps in creating a roof:

1. Define the panels that make up the roof.
2. Raise the roof to the level of the walls.
3. Raise the roof peak (assuming you don't want a flat roof).
4. Create *gable ends* by raising the wall height up to the roof peaks.
5. Enhance the roof with skylights, chimneys, and dormer windows.

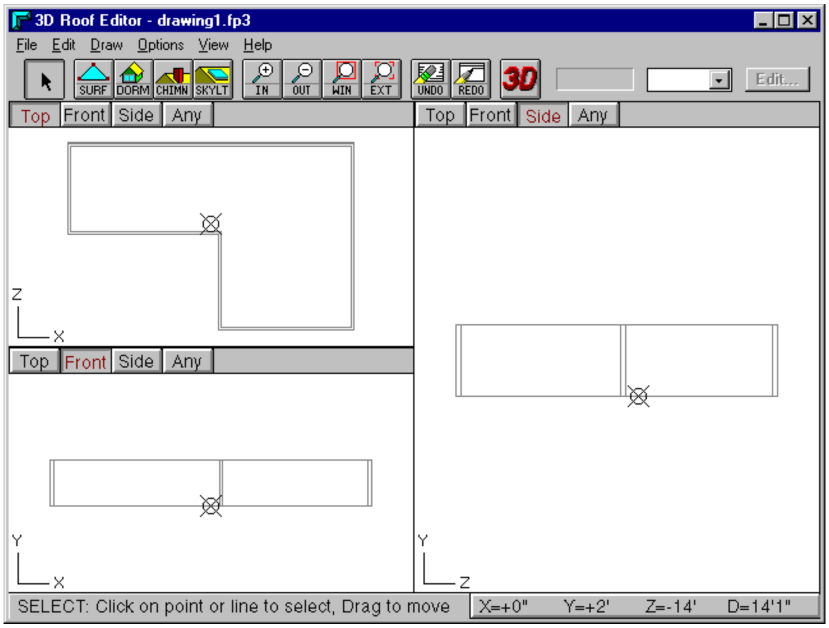
This chapter tells you how to start the Roof Editor, then how to create a roof by following these steps.

Starting the Roof Editor

Open drawing1.fp3 (which you created in Chapter 5 and modified in Chapter 6), then choose Design Roof from the File menu or click the Roof Editor button on the Ribbon Bar.

Notice that the screen is divided into three views, all of which you can switch to Front, Side, Top, or Any by clicking on one of the buttons at the top of the view panel.

NOTE: *You can customize the number of views by choosing No. of Viewports from the Options menu. If you can't see your whole house in each viewing window, use the zoom features to adjust the view. To zoom out, push the Out button on the Ribbon Bar, then click on the view from which you want to zoom out.*



SELECT: Click on point or line to select, Drag to move X=+0" Y=+2' Z=-14' D=14'1"

Defining the Roof Panels

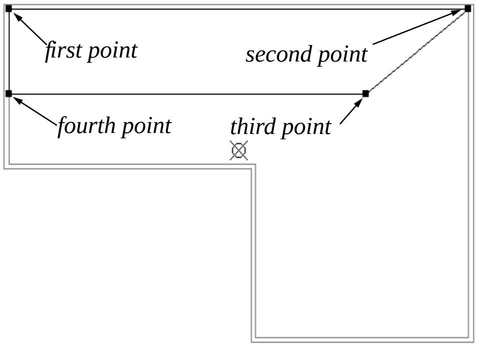
The fundamental building unit in the Roof Editor is the panel. A panel is a polygon representing a flat surface. In a gabled roof like the one you are going to make, each panel slopes away from the roof peak.

The first step in building a roof is to determine the number of roof panels you will need. In the case of the L-shaped house you designed in Chapters 5 and 6, you will need four panels to make a standard gabled roof.

Let's draw the panels:

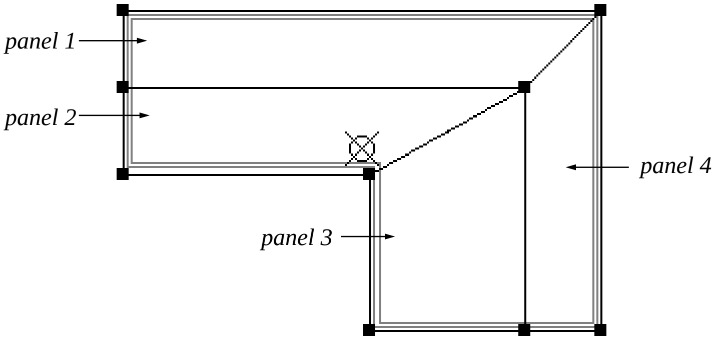
1. Make sure that snap-to-grid is on. (You'll need to do this from the View menu, because the Snap button isn't available in the Roof Editor.)
2. Push the SURF (= Surface) button on the Ribbon Bar.
3. Working in the Top view, click on the upper-left corner of the house. Click on the outer part, not the inner part, of the corner.

4. Click again on the upper-right corner (as you move the mouse, you will notice a rubber-band line attached to the points where you click).
5. Click a third time approximately one quarter of the way down the right-hand wall and several feet to the left.
6. Finally, click a fourth time half way down the left-hand wall.
7. Release the Surface tool by right-clicking. Four small squares should appear at the vertices of the roof. The following figure shows all four points in the panel. Notice that the vertices are placed on the outside, not the inside, of the walls.



8. Now repeat the process for panels two, three, and four.

The top view should now look something like this:



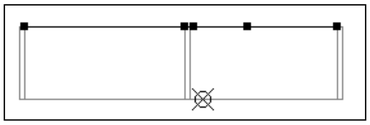
NOTE: Although many of the vertices (corners) of the panels overlap, they must be drawn individually. In other words, if there are four panels, each one with four vertices, you’ll have to define 16 points total. Always follow the roof-building credo: “One vertex, one point.”

Raising the Roof from Ground Level

The roof panels are initially created at ground level. Now that you’ve laid out the panels of the roof, you need to raise the roof to the height of the walls.

1. Click the Pointer tool to activate it.
2. Working this time in either the Side or Front view, drag a selection box around the roof vertices. Make sure that you select all of the vertices.
3. Position the mouse cursor over any vertex, hold down the mouse button, then drag the roof to the height of the walls. Release the mouse button to position the roof.
4. Click off the drawing to deselect the roof.

The side view should now look like this:

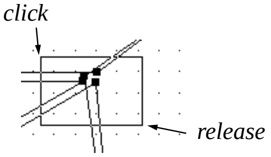


Raising the Roof Peak

To raise the peak you must first select the vertices that are located along the peak.

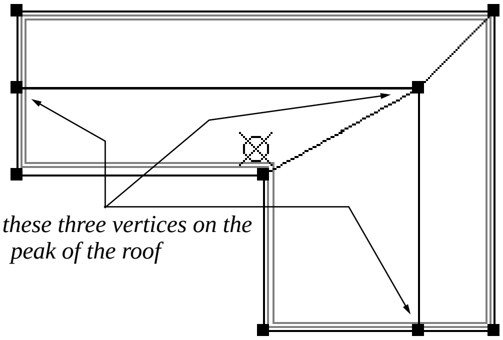
1. Once again working in Top view, click on one of the peak vertices.

TIP: *If the roof vertices of the overlapping panels are not aligned exactly in the same place, select the entire group by dragging a selection rectangle instead of clicking.*



selecting a group of vertices that are not exactly aligned

2. Hold down the <Shift> key and continue to select vertices until you have selected all of the vertices on the roof peak.



select these three vertices on the peak of the roof

3. Next, working in either the Side or Front view, click and drag the peak to the desired height. Click and drag the vertices to adjust the angle.

View your roof using the 3D Viewer. Remember, if you aren't perfectly satisfied with the roof, you can adjust the position of each vertex in any of the views.

TIPS: *To edit the roof vertices or see the effects of your edits in 3D, click the ANY button in the right-hand panel. To view the angles of the roof, select Roof Angles from the Options menu.*

Creating Gable Ends

Now that you've drawn your roof, you'll notice the large triangular holes where the roof and walls do not meet on either side. You can correct this by editing the wall height of the end walls. The roof will crop the walls to the correct height as long as the top edges of the walls are completely covered by the roof.

1. Choose File|Exit & Return to Drawing1.fp3 to exit the Roof Editor. A dialog appears asking whether you want to update. Choose Yes.
2. Choose View|Edit Building Levels and set the current level to 2.
3. Use the Pointer tool to select an end wall you wish to alter.
4. Hold down the <Shift> key and click on the other end wall so that they are both selected.
5. Press the Properties button to bring up the Wall Properties dialog.
6. Alter the height and width of the walls in the dialog. Adjust the wall height so that it is as high or higher than the roof peak, then click OK to close the dialog.
7. View the house again in 3D. If the roof does not appear to have cropped the walls, return to the Roof Editor and adjust the vertices in the Top View so that they completely cover the tops of the walls.

Adding Skylights, Chimneys, and Dormers

You can easily add skylights, chimneys, and dormer windows to your drawing by selecting the appropriate icons in the Roof Editor and clicking to place them into your drawing. *Design Your Own Plan* automatically accounts for the roof angle when you place the objects, so they will be flush with the roof surface.

11

Using Custom Styles

Styles, as discussed in the section Properties and Styles on page 4-7, are predefined property settings available for building objects. You can, for example, use different floor styles to represent different materials, such as hardwood, slate, or tile. When drawing or modifying objects, you can choose styles from the Styles pulldown list box on the Property Bar.

Design Your Own Plan comes with a set of predefined styles for areas, floors, windows, walls, railings, wires, and pipes. But suppose you specialize in building castles. Every time you work on a castle, you want to be able to click on the Wall tool and select Standard Castle Wall 4'X20'. When you click on the Window tool, you want to be able to choose Imperial 6'X15'. In other words, you want to create a collection of *custom styles* that you can load before you start drawing a castle. This chapter will demonstrate everything you need to know about adding new styles, editing pre-existing styles, and saving styles for later use.

SEE ALSO: *For additional information, refer to the Properties and Styles chapter in the* Design Your Own Plan *help system.*

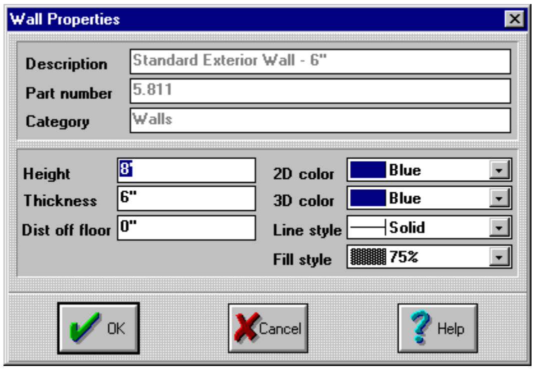
Adding New Styles

Before adding a new wall style, let’s take a look at the standard styles that come with FloorPlan Plus 3D:

1. Click the Wall tool to activate it.
2. Click the Style box on the Property Bar (refer to page 3-5 if you don’t know where this is). A list of all the wall default styles will appear.

In the following steps you will add a new style, Standard Castle Wall 4'X20, to this list.

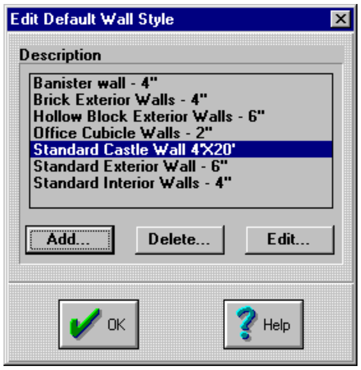
1. Choose Edit Default Styles from the File menu, then choose Walls from the submenu that appears. The Edit Default Wall Style dialog appears. This dialog contains a list of all the current wall styles.
2. Click the Add button to display the Wall Properties dialog.



Description: Standard Exterior Wall - 6"
Part number: 5.811
Category: Walls

Height: 8'
Thickness: 6"
Dist off floor: 0"
2D color: Blue
3D color: Blue
Line style: Solid
Fill style: 75%

3. Type **Standard Castle Wall 4'X20**' into the Description box and type **Wall** into the Category box.
4. Change the height to 20' and the width to 4'. Change the 2D and 3D colors to Light Gray. You might also want to change the fill style to a hatch pattern to give your castle walls some flair.
5. Click OK to return to the Edit Default Wall Style dialog. Notice that the style you just created now appears in the Description list.


Edit Default Wall Style
Description
Banister wall - 4"
Brick Exterior Walls - 4"
Hollow Block Exterior Walls - 6"
Office Cubicle Walls - 2"
Standard Castle Wall 4'X20'
Standard Exterior Wall - 6"
Standard Interior Walls - 4"
Add...
Delete...
Edit...
OK
Help

That's it. To draw a castle wall, click on the Wall tool and choose Standard Castle Wall 4'X20' from the pop-up list.

NOTE: Design Your Own Plan *allows a maximum of twenty different styles for each category of object. If you already have twenty styles for a type of object and you wish to add another, you must first delete one of the existing styles.*

Saving and Loading Styles

If you now save your drawing, the castle wall style will be saved with the drawing. But what if you want to draw more castles using the same style? You could open the same drawing, save it under a different name, then delete everything and start over. But there is an easier way.

Design Your Own Plan allows you to save style settings in style files, which are kept in the Design Your Plan directory and have the extension .STY. Once you have modified a drawing's styles using the Edit Default Styles dialog, you can save the style settings in a file using the File|Save Default Styles command. The style file can then be loaded into another drawing using the File|Load Default Styles command.

Saving Styles

Let's save the style settings in the current drawing:

1. Choose Save Default Styles from the File menu. The Save Default Styles dialog appears.
2. In the Filename box, type **Castle.sty**, then click OK to close the dialog.

All of the styles that were in the current drawing have now been saved into the Castle.sty file, which can be loaded into other drawings.

Loading Styles

Let's start a new drawing into which you can load the castle styles:

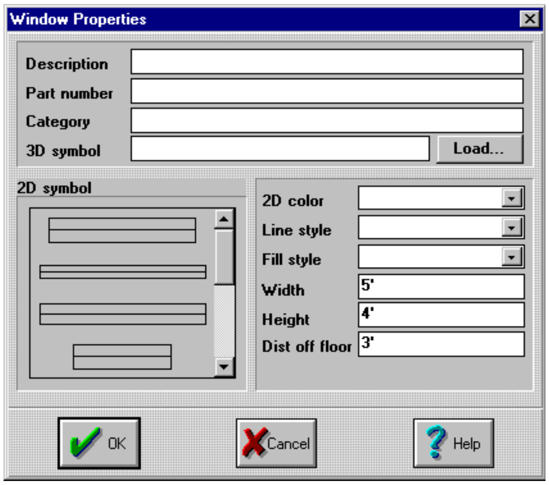
1. Choose New from the File menu to start a new drawing. (If you haven't saved the drawing, a warning dialog will appear. Saving the current drawing is optional.)
2. Choose Load Default Styles from the File menu. In the Files box, select the Castle.sty style file, then click OK to close the dialog.
3. The castle styles are now loaded into the drawing. To check this, choose Edit Default Styles from the File menu, then choose Walls from the submenu, displaying the Edit Default Wall Styles dialog. Notice that Standard Castle Wall 4'X20' appears in the Description list.

Customizing Window and Door Styles

Adding new window and door styles can be a bit tricky because these styles are associated with 3D symbols. To see how this complicates window and door styles, let's first look at the properties of window styles:

1. Choose Edit Default Styles from the File menu, then choose Windows from the submenu. The Edit Default Window Style dialog appears.

2. Click the Add button. The Window Properties dialog appears.



Width 5'
Height 4'
Dist off floor 3'

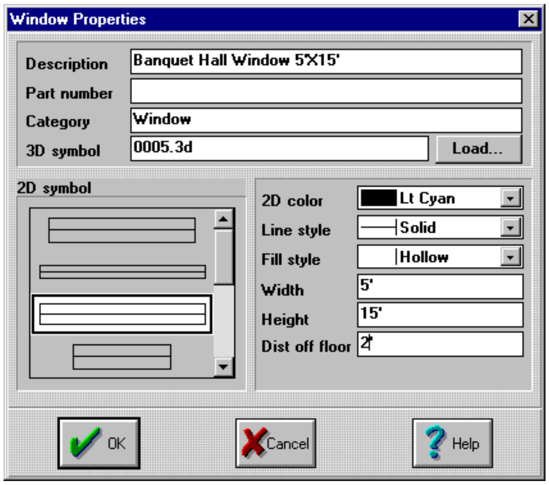
Notice that the Window Properties dialog requires you to associate the style with a 3D symbol. You must select a 2D symbol and browse for a 3D symbol as you would if you were associating a 3D symbol with a 2D symbol (see Associating 2D Symbols with 3D Symbols on page 7-7).

Unfortunately the file names of most of the 3D symbols tell you nothing of their contents, which makes it tedious to find an appropriate window symbol for your new window style. Therefore, you might find it easier to create a new Window style by modifying an existing one.

Let’s try this with a Window style:

1. Choose Edit Default Styles from the File menu, then Windows from the submenu.
2. In the Description box, select Double Pane 2', then click the Edit button. The Window Properties dialog appears.
3. In the Description box, delete Window : Double Pane 2', then type **Banquet Hall Window 5'X15'**.

4. Delete the number in the Part Number field. Tab down to the Width field and type **5'**. In the Height field type **15'**. In the Distance Off Floor field type **2'**. The dialog should now look like this:



Description: Banquet Hall Window 5'X15'
Part number:
Category: Window
3D symbol: 0005.3d
2D color: Lt Cyan
Line style: Solid
Fill style: Hollow
Width: 5'
Height: 15'
Dist off floor: 2'

5. Click OK to close the Window Properties dialog. Note that the Banquet Hall Window 5'X15' style now appears in the Description list. Note also that Window : Double Pane 2' is no longer available, because you overwrote the style when you edited it.
6. Click OK again to close the Edit Default Windows dialog box.

You can now choose File|Save Default Styles and save the new style in Castle.sty.

TIP: *There are two ways to restore the Double Pane 2' window style to your list. First you could add a new window style, using 0005.3d as your 3D symbol (0005.3d happens to be the file name of the Double Pane 2'). You can also retrieve the Double Pane 2' window by loading the default.sty using the Load Default Style command. Default.sty will return you to the style settings you had before you created your castle styles.*

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